

IN THE CLAIMS

1. (currently amended) A Bbreathing assistance device, comprising~~consisting of~~:

•a turbine to generate a flow of pressurised respiratory gas,

•a duct to carry the pressurised gas to a patient, and

•control means for controlling gas pressure capable of elaborating a pressure setting for the turbine,

wherein ~~characterised in that~~ the turbine is associated to a speed sensor capable of acquiring a signal corresponding to ~~the~~ a rotation speed of a rotating element of the turbine, and the control means includes means of calculation connected to said speed sensor to elaborate using said signal a ~~the~~ pressure setting and send ~~said~~ the pressure setting to the turbine.

2. (currently amended) A dDevice as claimed in the ~~preceeding~~ claim 1, wherein ~~characterised in that~~ said speed sensor implements a Hall effect sensor.

3. (currently amended) A dDevice as claimed in claim 1, wherein ~~characterised in that~~ said speed sensor is a sensor capable of acquiring a turbine speed signal directly connected to the rotation speed of ~~a~~ the rotating element of the turbine.

4. (currently amended) A dDevice as claimed in ~~one of the~~ preceeding ~~claims~~ 1, wherein ~~characterised in that~~ the means of calculation elaborates the pressure setting according to variations in speed.

5. (currently amended) A dDevice as claimed in ~~one of the preceding claims~~ 1, ~~wherein characterised in that~~ said means of calculation ~~is~~ are capable of detecting new inspiratory or expiratory cycles, and consequently adapting ~~the~~ a level of the pressure setting.

6. (currently amended) A dDevice as claimed in the ~~preceding claim~~ 5, ~~wherein characterised in that~~ said means of calculation ~~are~~ is associated to a program for detecting an inspiratory cycle using a comparison between-:

- ◆ Aa memorized speed value ~~that was~~ extrapolated using recent values of measured speeds, and

- ◆ Aan actually measured instantaneous speed ~~actually measured~~.

7. (currently amended) A dDevice as claimed in ~~one of the two preceding claims~~ 5, ~~wherein characterised in that~~ said means of calculation ~~are~~ is associated to a program for detecting an inspiratory cycle using a comparison between-:

- ◆ Aa memorized speed value ~~as~~ representative of a recent speed bearing, and

- ◆ Aan actually measured instantaneous speed ~~actually measured~~.

8. (currently amended) A dDevice as claimed in ~~one of the three preceding claims~~ 6, ~~wherein characterised in that~~ said means of calculation ~~are~~ is associated to a program for detecting an inspiratory cycle using a comparison between:

- ◆ Aa memorized speed value ~~as~~ representative of a speed at the end of ~~the~~ an expiratory cycle, and

• ~~Aan~~ actually measured instantaneous speed ~~actually measured~~.

9. (currently amended) A dDevice as claimed in ~~one of the three preceding claims~~ 6, ~~wherein characterised in that~~ said means of calculation ~~are~~ is associated to several programs for detecting an inspiratory cycle operating simultaneously, and is ~~are~~ capable of elaborating a pressure setting corresponding to a start of inspiratory cycle as soon as one of said programs for detecting the inspiratory cycle has signalled a start of inspiration.

10. (currently amended) A dDevice as claimed in ~~one of the four preceding claims~~ 6, ~~wherein characterised in that~~ the program(s) for detecting the inspiratory cycle is ~~(are)~~ associated to disabling means for a determined duration following the start of a new expiratory cycle.

11. (currently amended) A dDevice as claimed in ~~one of the five preceding claims~~ 5, ~~wherein characterised in that~~ the means of calculation ~~are~~ is associated to a program for detecting an expiratory cycle.

12. (currently amended) A dDevice as claimed in ~~the preceding claim~~ 11, ~~wherein characterised in that~~ said program for detecting the expiratory cycle uses a comparison between:

• Aa memorized maximum turbine speed, corresponding to an inspiratory cycle, and

• ~~Aan~~ actually measured instantaneous speed ~~actually measured~~.

13. (currently amended) A dDevice as claimed in ~~one of the preceding claims 1~~, wherein characterised in that said means of calculation includes a microprocessor connected to the speed sensor and to a turbine pressure setting input.

14. (currently amended) A dDevice as claimed in ~~one of the preceding claims 1~~, wherein characterised in that the device also ~~further~~ includes a pressure-regulating loop ~~comprising~~consisting of:

- a pressure sensor on the duct, and
- a circuit receiving the pressure setting coming from the means of calculation as well as ~~the~~ a pressure measured by the pressure sensor, said circuit being capable of elaborating an instantaneous rotation speed setting for the turbine, said circuit being connected to a turbine speed setting input.

15. (currently amended) A mMethod for regulating a the pressure of a respiratory gas delivered by a turbine to a patient, the method comprising:

providing a signal representative of a rotation speed of a rotating element of the turbine; and

elaborating a pressure setting for the turbine based on the signal representative of the rotation speed,
~~characterised in that said pressure setting is elaborated using a signal representative of the rotation speed of a rotating element of the turbine.~~

16. (currently amended) A mMethod as claimed in ~~the preceding claim 15~~, wherein characterised in that said signal corresponds to the rotation speed of the turbine rotor.

17. (currently amended) ~~A mMethod as claimed in one of the two preceding claims 15, wherein characterised in that the~~ method is capable of detecting new inspiratory or expiratory cycles, and of consequently adapting ~~the a~~ level of the pressure setting.

18. (currently amended) ~~A mMethod as claimed in the preceding claim 17, wherein characterised in that the~~ method implements a program for detecting an inspiratory cycle using a comparison between:

- ~~Aa~~ memorized speed value ~~that was extrapolated from~~ recent values of measured speeds, and

- ~~Aan~~ actually measured instantaneous speed ~~actually measured.~~

19. (currently amended) ~~A mMethod as claimed in one of the two preceding claims 17, wherein characterised in that the~~ method implements a program for detecting an inspiratory cycle using a comparison between:

- ~~Aa~~ memorized speed value ~~as representative of a~~ recent speed bearing, and

- ~~Aan~~ actually measured instantaneous speed ~~actually measured.~~

20. (currently amended) ~~A mMethod as claimed in one of the three preceding claims 17, wherein characterised in that the~~ method implements a program for detecting inspiratory cycles using a comparison between:

- ~~Aa~~ memorized speed value ~~as representative of a~~ speed at the end of an expiratory cycle, and

• ~~Aan actually measured instantaneous speed—actually measured.~~

21. (currently amended) ~~A mMethod as claimed in one of the three preceding claims 18, wherein characterised in that the~~ method implements several programs for detecting inspiratory cycles operating simultaneously, and elaborates ~~a—the~~ pressure setting corresponding to an inspiratory flow as soon as one of said programs for detecting the inspiratory cycles has signalled the start of inspiration.

22. (currently amended) ~~A mMethod as claimed in one of the four preceding claims 18, wherein characterised in that the~~ program(s) for detecting inspiratory cycles is (are) associated with a stopping during a determined duration following the start of a new expiratory cycle.

23. (currently amended) ~~A mMethod as claimed in one of the six preceding claims 17, wherein characterised in that the~~ method implements a program for detecting expiratory cycles.

24. (currently amended) ~~A mMethod as claimed in the preceding claim 23, wherein characterised in that said program~~ for detecting expiratory cycle uses a comparison between:

• ~~Aa memorizsed maximum turbine speed, corresponding to~~ an inspiratory cycle, and

• ~~Aan actually measured instantaneous speed—actually measured.~~